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ABSTRACT

The socially constructed beliefs that teachers hold about knowing, teaching, learning, and praxis are likely to have a profound influence on their practice. Too often teachers serve to reproduce traditional authoritarian and didactic patterns of instruction in schools, apparently because they themselves have never been given the opportunity to conceive of education as a project of possibility in which students engage in the critical and social construction of meaning. Examination of research literature suggests that most teachers believe teaching to be a didactic, authoritarian activity, and that in their teaching they appear to teach in a manner quite consistent with this belief system. A systematic theory of teacher cognition is needed to validate an alternative to the existing behavioristic and didactic approach to the education of teachers. This paper raises the possibility that developmental psychology, specifically the study of adult intellectual development, may be well equipped to fill the void by conceptualizing and investigating the issue of teachers' beliefs, and their relation to practice, from a cognitive-developmental perspective. A preliminary research agenda for constructivist investigation of teachers' beliefs is proposed. (IAH)

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The influence of teachers' beliefs about knowledge, teaching and learning on their pedagogy: A constructivist reconceptualization and research agenda for teacher education.

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Why do teachers teach the way they do? Is there a connection between the ways teachers think about knowledge and praxis, and the way they actually teach? Where do teachers' beliefs about knowledge and praxis come from, and are they isolated, domain-specific beliefs, or are they representative of teachers' systemic beliefs about social, political and cultural phenomena? In their beliefs and in their practice, do teachers tend to act as agents of reproduction for society in their conduct of schooling, or is there evidence that teachers transcend the socialization forces that shaped their own beliefs, so that they create opprotunities for liberatory education in their classrooms? In this paper I will argue that the socially constructed beliefs that teachers hold about knowing, teaching, learning and praxis are likely to have a profound influence on their practice. I will also argue that too often teachers serve to reproduce traditional authoritarian and didactic patterns of instruction in schools, apparently because they themselves have never been given the opportunity to conceive of education as a project of possibility in which students engage in the critical and social construction of meaning.

The broad parameters of the argument I am making are not new. Indeed there is currently quite a burgeoning critical literature in educational theory which argues that there is a pressing need to reconceptualize teacher education as a process of promoting the critical consciousness of teachers with respect to their beliefs about knowledge and praxis so that teachers may become reflective, empowered knowers who can then engage their students in a similar process of coming to know for themselves. Missing from this literature - which is almost exclusively nonpsychological in nature - is any clear theory of the nature of teachers' beliefs, or any specific evidence demonstrating the effects of one kind of reflective teacher education program over another in modifying either

teachers' beliefs or their practice. Without a systematic theory of teacher cognition - one that would clearly describe the structure of teachers' beliefs, their origins, their developmental pathways, their relation to general belief systems, their amenability to facilitation by certain types of teaching, and their relation to practice - it is impossible to validate an alternative to the existing behavioristic and didactic approach to the education of teachers. The purpose of this paper is to raise the possibility that developmental psychology, and particularly that branch of developmental psychology devoted to the study of adult intellectual development, may be well equipped to fill the void by conceptualizing and investigating the issue of teachers' beliefs and their relation to practice from a cognitive-developmental perspective. A number of benefits promise to accrue to psychologists who engage in this type of research, including an opportunity to study belief systems in the epistemologically rich, yet specific domain of teacher knowledge; an opportunity to engage in research into the relationship between beliefs and action in a complex, real-world domain; an opportunity to investigate how to increase the influence of constructivism and developmental theory in schooling; and an opportunity to engage in research into intellectual development and learning in school settings in which the role of teacher's beliefs and actions are recognized as an important part of the context and are included in the investigation.

The notion of teacher beliefs

In earlier research in which my colleagues and I investigated the influence of prior beliefs on the processing of newly presented empirical evidence, we conceptualized beliefs as theories, and much of our research was directed towards understanding how subjects interrelated evidence with these theories (Kuhn, Amsel & O'Loughlin, 1988). While part of that

theoretical orientation still influences my thinking, I now think it preferable to designate preexisting assumptions as beliefs rather than theories, since the latter term is suggestive of the idea that beliefs have some of the explicit and systematic explanatory properties normally associated with the term "theory." The term "belief" is problematic, of course, and as Sigel (1985) notes, not only has it been defined in a variety of ways in the literature, but many researchers have not troubled to offer any defintion at all. My own understanding of the term is largely consistent with the definition worked out by Sigel in a paper entitled A conceptual analysis of beliefs (1985). In that paper Sigel suggests that beliefs are socially constructed representational systems that people use to interpret and act upon the world. Beliefs may or may not be based on evidence, Sigel suggests, and those that are not evidentially based are more likely to be resistant to change. Another factor that affects the potential for change in beliefs, Sigel argues, is the degree to which the boundaries that surround the beliefs in a specific domain are permeable. Beliefs which are contained within highly impermeable boundaries are likely to be resistant to new evidence, as well as to conflicting information from other areas of an individual's belief system. Those individuals who have developed a highly consistent set of beliefs across a variety of domains, Sigel suggests, can be considered as possessing a belief system. Sigel also notes that beliefs may be conscious or unconscious, with the latter being in evidence only when people are asked to apply their existing interpretive frameworks to novel situations or stimuli.

While the structure of beliefs is an interesting topic in its own right, of greater interest, perhaps, is the relationship between belief and subsequent action. Drawing on his own investigations in an area quite analogous to the one of interest here, namely the relationship between parent's beliefs about childrearing and their practice of childrearing, Sigel

advances a structural model of beliefs. Sigel's model (reproduced here as Figure 1) indicates hypothesized components that link together the various interacting factors that appear to lead people to act the way they do. As Fig. 1 indicates, the hypothesized components of the belief-action process are (1) the source of beliefs; (2) agents that induce change in beliefs; (3) classes of beliefs, and the degree of affect and intensity with which they are held [hereafter referred to as "core beliefs"]; (4) beliefs about means-ends [hereafter referrred to as "beliefs about praxis"]; (5) contextual influences on belief formation and practice; (6) beliefs about practice [hereafter referred to as "theories-in-action"]; and (7) the outcomes of those theories-in-action.

Extrapolating from Sigel's model to the analogous case of the relationship between teachers' beliefs and their practice, this model suggests that the following aspects of teachers' beliefs are worthy of scrutiny. First, there is the issue of the origin of teachers' beliefs. As I will show momentarily, there is considerable speculation and some data that suggest that the models of practice that most teachers' employ are close facsimiles of the modes of teaching to which they themselves were exposed during the many years that they played the role of student, suggesting that the experience of schooling is a potent force in belief formation. Family influences and personality and other variables that influence people to choose teaching as an occupation may also serve to contribute to the types of representations of teaching that teachers hold. Second, with respect to Sigel's category of "change agents", the formal education teachers receive in teacher preparation programs as well as the practical socialization teachers receive in schools during observation, internship, and actual teaching likely contribute to shaping what Sigel terms their core beliefs. In this case, core beliefs refer to teachers' knowledge of and perception of their discipline. Included here would be

items such as their understanding of the nature of knowledge, of pedagogical and child development theories, historical and social foundations of the discipline of education and so on. Of interest also is how these domain-specific core beliefs relate to their core beliefs in other areas such as religion and the nature of political, social and cultural reality. From his own investigations of parental beliefs, Sigel suggests that there is a high probability of concordance between beliefs and practices of childrearing, and the individual's general belief system. It is an open question whether this might also be true for teachers.

Third, with respect to belief-praxis, it is of considerable interest to describe the beliefs teachers hold about the practice of teaching. Sigel points out in his article that core beliefs are often a very poor predictor of behavior, but that the possibility for prediction increases greatly if beliefs about praxis are also studied because the latter offer a more direct link to specifiable action. Finally, in this regard, Sigel notes that the degree to which core beliefs and beliefs about praxis predict actual behavior is likely to be attenuated by the intensity with which such beliefs are held, and the degree to which the individual is emotionally invested in the outcome. Fourth, in order to assess the concordance between beliefs and actions, the outcome behavior neeeds to be studied, since it is presumably representative of some implicit representation of the process of interest. The notion of belief at issue here is analogous to the concept of theory-in-action postulated by Karmiloff-Smith and Inhelder (1975) to explain children's problem solving, and by Schon (1987) to explain the patterns of practice of the professional practitioners he studied. Investigation of theories-in-action obviously requires a combination of observational and interview techniques in order to describe teachers' actions, and the rationale for their actions. Not explicitly included in Sigel's model, though perhaps implied in the "contextual" category in the

lower central box in Figure 1, and of particular importance in the case of understanding the influence of teachers' beliefs on their practice, is an analysis of the belief system prevailing in the educational environment of the school. This belief system or epistemological atmosphere is composed of the explicit and hidden curriculum of school boards and administrators as well as the not-so-hidden curriculum underlying standardized tests, prepackaged curricula and mass-produced worksheets. Research by McNeil (1986) and others clearly illustrates the inhibiting effects these constraints can have on both teachers' beliefs as to what is possible in teaching and on their practice of teaching. The final component of Sigel's model refers to the outcomes of practice. In the case of teaching, this refers to the observed effects on student development, learning and performance of the specific style of practice adopted by the teacher. As Sigel's model suggests, since a variety of student outcomes might be expected from teachers who practice in different ways, student outcomes need to be conceptualized and measured in a wide variety of ways. Lastly, lest any oversimplification be implied, Sigel notes that many of the factors that influence belief formation and the relationship between belief and action operate in interaction with each other, an interaction that is represented by the bidirectional arrows in Figure 1. Perhaps the relevance of Sigel's model, as well as possible specific research questions that emanate from this line of argument will become more obvious after considering what we currently know about teachers' beliefs and their relation to practice.

What do we know about teachers' beliefs?

In the section which follows I have abstracted the main findings from research that addresses the various components of teacher beliefs already described. This summary is not intended to be exhaustive, but rather to

convey the general pattern of findings. I believe that a consistent pattern of teacher beliefs can be extrapolated from the research. To preview, it appears that most teachers believe teaching to be a didactic, authoritarian activity, and that, in their teaching they appear to teach in a manner quite consistent with this belief system. Contextual and educational factors contribute to the maintenance and perpetuation of this belief system, which then manifests itself in a very consistent set of outcomes for students. Research suggests that the system is self-reproducing, and that if the cycle of didacticism is to be broken, it must be done by impacting on teacher beliefs about knowing and teaching, as well as by inducing teachers to engage in critical reflection on their practice. Of course, as I will discuss in the concluding part of the paper, the latter cannot occur without a thorough understanding of the structure of teachers' belief systems and their impact on practice.

1. What does teachers' practice tell us about their theories-in-action? Goodlad (1983a, b) surveyed over 1,000 public school classrooms nationwide for his authoritative study of schooling. One of the most interesting findings from Goodlad's research was the remarkable homogeneity of teaching practice at all levels, nationwide. Goodlad found that most of the classrooms he visited were monotonous, and intellectually deadening. He reported that there was virtually no affect evident in teacher-student interaction, and he found that teachers rarely troubled to give informative feedback to students. The epistemological atmosphere of most classrooms was extremely limiting, with only one way of knowing permitted - the teacher's. The standard and almost universal method of teaching was the traditional didactic approach in which teachers spent most of their time lecturing and most of the remaining time was devoted to seatwork during which students filled out routine factual information on worksheets. Goodlad reports that students "rarely

planned or initiated anything, read or wrote anything of some length, or created their own products, and they scarcely ever speculated on meanings, discussed alternative interpretations or engaged in projects calling for collaborative effort. Most of the time they listened or worked alone. The topics of the curriculum... were something to be acquired, not something to be explored, reckoned with and converted into personal meaning and development" (1983a, p.). If observed behavior can be construed as representative of theories-in-action, as discussed earlier, these findings suggest that most teachers exemplify a belief in the received view of knowledge.

The received view, which, as Jackson (1986) notes, has been in dialectical tension with a constructivist or transformative view of knowing at least since the time of Aristotle, proposes that knowledge is objective; that it emanates from authority; that truth can be established definitively and so on. This epistemology, which appears to be the dominant one underlying teachers' practice, precludes inquiry, exploration and the personal construction of meaning. Instead, it mandates a one-way communication system in which teachers transmit information to students in discrete pieces, and then test students objectively to assess their ability to reproduce the information that has been transmitted.

2. What effect does teachers' practice have on student learning and development? Since the received view of knowing is the antithesis of constructed knowing, it is hardly surprising that this type of teaching would lead to a lack of thinking and intellectual engagement among students. Studies of writing, and of mathematical and scientific reasoning bear this out, documenting a decline in all types of higher-order reasoning skills among high school students in recent years (cite recent NAEP reports). There is also rising concern among educational commentators (e.g., Finkelstein, 1984; Giroux & McLaren, 1986; Greene, 1988) that the

prevailing mode of teaching is leading to a decline in the kind of thoughtfulness and informed participation in decision-making that are so necessary to the continuance of our participatory democratic system. Sirotnik (1983), a collaborator of Goodlad's, sums up the issue nicely by suggesting that the current educational system teaches students "dependence on authority, linear thinking, social apathy, passive involvement and hands-off learning" (p. 29).

3. What do we know of teachers' core beliefs and beliefs about praxis? In an article entitled Cultural myths in the making of a teacher: Biography and social structure in teacher education, Britzman (1986) presents a useful sociological case study of the cultural myths (i.e., beliefs) that a group of student teachers held about teaching. Based on her analysis, Britzman was quite explicit about the role beliefs - which she terms "institutional biographies" - play in informing both the student teachers' concepts of praxis and their actual practice:

> Prospective teachers, then, bring to teacher education more than their desire to teach. They bring their implicit institutional biographies - the cumulative experience of school lives - which, in turn, inform their knowledge of the student's world, of school structure and of curriculum. All of this contributes to well-worn and commonsensical images of the teacher's work and serves as the frame of reference for prospective teachers' self-images (p.443).

Of course these "well-worn and commonsensical images" are a product of the students' own experiences of a system of schooling in which, as we have seen, the predominant mode of teaching is authoritarian, and didactic, and based on the received view of knowledge. As if this socialization were not sufficiently potent, Britzman argues that prospective teachers' beliefs are narrowed even further since they are based only on seeing the act of

teaching from the recipient's viewpoint. Britzman suggests that this leads student teachers to adopt a utilitarian focus, in which attention is paid only to acquiring proven methods of teaching performance, rather than to addressing the purpose of teaching. In summary, student teachers enter teacher education with well-developed beliefs about good teaching as the presentation of a polished, efficient didactic performance, and with a desire to learn as many techniques as they can so that they too can reproduce this performance with which they are so familiar. Translated into psychological terms, this suggests that student teachers actively seek confirmation and elaboration of their preexisting notions of teaching and praxis.:

> Prospective teachers, then, want and expect to receive practical things, automatic and generic methods for immediate classroom application. They bring to their teacher education a search for recipes, and, often, a dominant concern with methods of classroom discipline, because they are quite familiar with the teacher's role as social controller... The learning expectations brought to teacher education by these student teachers resembled the images of learning cultivated in their compulsory school lives. There, learning took the form of a concrete product, something acquired, possessed, and immediately applied (Britzman, 1986, pp. 446-7).

Expanding further on this analysis, Britzman details in her article how, these images of teaching and learning - which were based on an unreflective interpretation of the student teachers' own experiences in school - caused the student teachers to reproduce the authoritarianism, the anti-intellectualism and the didacticism of their own schooling in their beliefs about and practice of teaching. Thus, by not questioning their own core beliefs, and by seeking to elaborate a set of beliefs about praxis that serve to confirm their own intuitions about the one right way to teach, new teachers serve to create a reproductive cycle that ensures the continuance of the type of learning and teaching that we know to be so common in schools.

4. Does teacher education serve as a change agent for teacher beliefs?

There is considerable evidence to suggest that teacher education, rather than assisting students in examining the origins and contexts of their beliefs, actually serves to confirm and reinforce students' initial, unexamined beliefs about teaching and praxis (Britzman, 1986; Duckworth, 1984; Feinberg, 1985; Giroux, 1984, 1985; Goodlad, 1983a, b; Kliebard, 1975; Zeichner, 1983). As Goodlad says:

> Professional education is intended to immerse the neophyte in the state of the art and science of teaching and simultaneously to spearate him or her from the myths and anachronisms of conventional practice. Teacher education appears to be organized and conducted to assure precisely the opposite. (1983a, p.468).

Among the reasons for this two are predominant. First, as the history of teacher education shows, the field has historically been premised on a behavioristic approach to education, and thus much of the teaching in schools of education conforms to the same didactic, one-right-answer approach that we know to be characteristic of public school education. In this context, we should hardly be surprised that new teachers would perceive teaching as a unidimensional didactic process. Second, traditionally teacher educators have paid little attention to bridging the gap between theory and practice. Thus, even when good theoretical courses in educational foundations are offered, they are taught without any connection to the reality of schools. Faced with this, and with the typical division of labor in teacher education - with academics teaching foundational courses in educational theory, and practitioners, often with limited theoretical background, teaching the practical courses and engaging in field supervision - students often fail to make connections between the theoretical and the practical knowledge. Bearing in mind that their preexisting beliefs predispose them to seek means rather than to

clarify the end purpose of teaching, the end result is that students usually dismiss theoretical material as impractical, and they embrace the practical advice on how to teach because it is real and serves to assuage their anxiety about not being able to teach well. Indeed, research shows that most teachers discard most of the theoretical knowledge that they "learn" in teacher education programs almost immediately after they begin teaching, and depend for their professional success on the advice of more experienced colleagues. Thus, by failing to intervene in such a way as to cause students to examine their beliefs, to gain ownership over a coherent set of core beliefs and beliefs about praxis, and to carry those beliefs over into practice, the sole effect of teacher education appears to be to confirm student teachers' existing beliefs. It is thus that the reproductive cycle of schooling continues.

5. What effect does the epistemological atmosphere of schools have on teachers' beliefs? Teachers who hold divergent (e.g., constructivist) beliefs about teaching and praxis may be thwarted from implementing them in practice due to constraints imposed by school administrators or by the imposition of standardized curricula and testing programs. Darling-Hammond and Wise (1985), for example, present data that illustrate how standardized testing has become "a powerful force in shaping classrooms." These authors report that the emphasis on accountability and measurable outcomes has forced teachers (1) to alter the focus of their curriculum; (2) to teach test-taking skills; (3) to teach for the test; (4) to take time away from class instruction for test preparation; and (5) to feel pressured to achieve measurable results in order to be seen to be accountable. Darling-Hammond and Wise suggest that this leads to the disempowerment of teachers and to the restriction of the learning opportunities available to students. Darling-Hammond (1985) summed up the effect of standardized testing programs on teacher practice

and student learning as follows: "They leave little room for exploration, inquiry and critical thinking as they press inexorably for the best multiple-choice answer to questons that ought to be the subject of reflection and debate" (p. 211). These findings are borne out by the research of Apple and others (e.g., Apple & Teitelbaum, 1985; Shannon, 1984) into the deskilling of teachers through the imposition of standardized, prepackaged curricula. Nowhere is the compelling relationship between contextual factors and teachers' theories-in-action as evident, however, as in McNeil's (1986) research into the effects of institutional constraints on the practice of teaching. As part of her research, McNeil observed a number of traditional, didactic classes which were obviously boring and sterile for students. In subsequent interviews with the teachers who had taught these classes, McNeil was surprised to find that many of them were bright, articulate people who had interesting ideas, and who were enthusiastic and knowledgable about their subjects. They had, however, learned, just as many public school students have learned, to play the game of school. They left their personal knowledge and interests at the gate, and, because no more was expected nor permitted by the system, went through the motions of teaching in a detached and alienated manner. In terms of Sigel's model, one could say that contextual forces compelled these teachers to detach one portion of their belief system - that pertaining to the practice of teaching - and to construct an impermeable boundary around it in order to enable them to cope with the dissonance of having to act in a manner inconsistent with their overall belief system. Unfortunately, the price for such an action was typically a severe sense of alienation. McNeil's research, in particular, points to the importance of including contextual variables in any analysis of the transition form core beliefs and beliefs about praxis to theories-in-action.

Breaking the reproductive cycle: A constructivist reinterpretation of the process of becoming a teacher

To speak of breaking the reproductive cycle of traditional, didactic education is of course to make a value judgment. My commitment is to a constructivist-based and developmentally-oriented educational system in which teachers encourage students to examine their lives and beliefs critically; in which students are encouraged to develop the capacity to pose problems rather than to find discrete solutions; in which most fundamentally, students are liberated from the tyranny of seeing the world only through their own implicit belief systems, and instead are given the opportunity to develop the capacity (1) to recognize and articulate their own beliefs and taken-for-granted perceptions using their voices; (2) to engage in a critical examination of their own beliefs and the political, social and cultural forces that helped shape them; (3) to consider alternative points of view in an empathic and equally critical manner; (4) to construct for themselves their own informed and critical understanding of issues; and (5) to gain sufficient ownership over the ideas they are constructing to be able to connect them in some valid manner with the praxis of their own lives. I am convinced that it is unrealistic to expect this kind of educational change to occur until teachers, who are necessarily at the nexus of educational change, are given the opportunity to develop core beliefs, beliefs about praxis and theories-in-action that are consistent with this critcal and constructivist ideology.

Although, as noted earlier, little progress has yet been made in formulating a theoretical base for an approach to teacher education that would tackle these problems, there are many educational theorists and practitioners actively experimenting with approaches to teaching that are

in spirit with these objectives. Writers in the fields of critical pedagogy and feminist pedagogy, drawing on various critical educational theorists including Dewey, Freire and others, have begun to experiment informally with ways to create classrooms in which these kinds of learning outcomes can come about. Drawing upon the writings of Freire, I myself have experimented in my own teaching with an approach to pedagogy that is problem-posing in nature; that uses various dialogical formats; and that is designed to be empowering for students in that it builds upon student voices and fosters in them a belief in their own ability to come to read the world critically for themselves so that they may act upon it transformatively. (O'Loughlin, 1988a, b, c). While much exciting work is going on in the area of alternative pedagogies, most of the work in this area, including my own, is either entirely theoretical or else is based on case-study analysis or autobiographical reports. While these methodologies have some distinct qualitative advantages, they have been slow to provide a theoretical rationale for what the essential problem is in educating teachers.

In the course of my own attempts to teachers in a critical manner I became increasingly convinced that there was a strong correlation between the kinds of mental conflicts and anguish my students went through as they tried to grapple with the multiplistic, constructed view of education that we examined in class, and the kind of anguish Perry (1970) describes as typical of the path toward mature intellectual development of the Harvard undergraduates in his ground-breaking study. On reflection, this made sense. If indeed students have grown up with and continue to espouse the received view of knowing - an essentially dualistic position in Perry's terms - it follows that being confronted with the need to break with this way of knowing in order to embrace a world of possibilities, and worst of all being confronted with the need to construct their own

informed philosophies of teaching would induce exactly the kind of dissonance that Perry describes as characteristic of transition. In my own classes of undergraduate student teachers, I regularly witness students attempting to either progress (or avoid progressing) through the early positions of the Perry scheme. From my own informal observations I have become convinced of the value of construing teacher education theoretically as a problem of belief, since, as Sigel (1985) notes, this necessarily mandates that the issue be considered a cognitive-developmental one of the nature of teacher understanding. I had hoped to explore the issue of teacher understanding further in this paper, particularly utilizing the work of Perry (1970) and Belenky et al. (1986) as a framework for understanding the types of changes that are possible in teachers' frames of reference and modes of understanding, and using Schon's (1987) work to develop a framework for thinking about how theories-in-action develop and relate to initial core beliefs and beliefs about praxis. Now, however, that will have to wait, although the interested reader is referred to my earlier paper (O'Loughlin & Campbell, 1988) for my preliminary attempt at making these conneections.

A preliminary research agenda for the constructivist investigation of teachers' beliefs

The following is a brief schematic of the kinds of research questions that arise from the foregoing conceptualization. Each needs considerable refinement, and the issues of interaction between belief systems, as indicated in Sigel's Fig. 1, as well as complex methodological problems need to be worked out. Most questions need to be addressed developmentally.

I.INVESTIGATION OF THE DEVELOPMENT OF TEACHER BELIEFS

1. What kind of core beliefs and beliefs about praxis do entering student teachers (graduate & undergraduate) hold? What is the origin of these beliefs?
2. What kind of core beliefs and beliefs about praxis do graduating student teachers (graduate & undergraduate) hold?
3. What is the nature of the theories-in-action exhibited by graduating student teachers?
4. What kind of core beliefs, beliefs about praxis and theories-in-action do the same teachers exhibit, say, once they have completed their second year of full-time professional teaching?

II. INVESTIGATION OF THE EFFECT OF TEACHER EDUCATION AS A CHANGE AGENT

All of the foregoing, as well as...

1. A similar investigation into the beliefs that foundational professors, field supervisors and cooperating teachers hold in these domains.

2. A controlled comparison between two groups of students, one in a traditional didactic teacher education program, the other in a critical and constructivist teacher education program

III. TEACHER BELIEFS AND THE SOCIAL CONTEXT "EPISTEMOLOGICAL ATMOSPHERE') OF SCHOOLS

1. What kind of core beliefs, beliefs about praxis and theories-in-action do teachers within a specific school hold?

2. What kind of core beliefs and beliefs about praxis do relevant school adminsitrators hold?

3. With respect to the epistemological atmosphere of school, what constraints do curriculum and standardized testing impose? How do teachers perceive these constraints?

IV. THE RELATIONSHIP BETWEEN BELIEFS AND STUDENT OUTCOMES

For a sample of teachers who teach didactically, and a sample of teachers who attempt to teach in a critical constructivist manner...

1. What kind of core beliefs, beliefs about praxis and theories-in-action do teachers in each group hold?
2. What is the relationship between these beliefs and student outcomes, broadly defined?

V. BRIDGING THE GAP BETWEEN THEORY AND PRACTICE

If, indeed, teachers' core beliefs and beliefs about praxis can be facilitated...

1. In what way does this influence teachers' theories-in-action?
2. What are the obstacles associated with bridging the gap between theory and practice?
3. Can a developmental progression be described for the progression from the acquisition of intellectual beliefs about teaching and praxis to the ownership of these ideas as exemplified in theries-in-action?

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